

Creation of the C-17

- 1st flight on September 15th, 1991
- Boeing delivered first production model to Charleston Air Force base on June 14th 1993
- The first squadron of C-17's, the 17th Airlift Squadron was declared operationally ready January 17, 1995
- Cost per aircraft \$202.3 million
- Primary function is as a cargo and troop transport



Characteristics

- Wing area – 3,800 feet
- Wing sweep – 25 degrees
- Cruise speed – Mach 0.74
- Service ceiling – 45,000 feet
- Maximum ramp weight – 586,000 pounds
- Maximum takeoff gross weight – 585,000 pounds
- Engines:
- Thrust – 40,440 pounds
- Bypass ratio – 5.9 to 1
- Fan tip diameter – 85 inches
- Weight (approximately) – 7,100 pounds
- Crew – two pilots, one loadmaster



Capabilities

- Palletized cargo**
- Pallet maximum weight – 10,355 pounds
- Combat offload capability:
- Single row (11 pallets) – up to 113,905 pounds
 - Double row (18 pallets) – up to 164,900 pounds
- Air drop**
- Aerial delivery system:
- Single loads up to 60,000 pounds at 2,400 pounds per linear foot
 - Sequential loads up to 110,000 pounds and 64 feet long
- Container delivery system:
- 40 containers at 2,350 pounds total rigged weight each
- Paratroopers: 102 plus eight equipment bundles
- General**
- Ramp capacity (in flight) – 40,000 pounds
- Ramp toe capacity (unsupported)
- Wheel load (single toe) – 5,000 pounds
 - Single axle load (pair of toes) – 10,000 pounds
 - Pallet loading or combat offload – 10,355 pounds
- Containers
- Center airdrop rail system – four
 - Logistics rail system (chained) – at least five



Cargo comparisons

	C-17	C-130	C-141	C-5
Length	68 ft	41 ft	93 ft	121 ft
Length with ramp	88 ft	52 ft	104.4 ft	144.7 ft
Width	18 ft	10.1 ft	10.2 ft	19 ft
Height at shoulder	12 ft 4 in	9 ft	9 ft 1 in	9 ft 6 in



U.S. Air Force photo

The C-17 Globemaster III is the newest, most flexible cargo aircraft to enter the airlift force. The C-17 is capable of rapid strategic delivery of troops and all types of cargo to main operating bases or directly to forward

bases in the deployment area. The aircraft is also able to perform tactical airlift and air-drop missions when required. The inherent flexibility and performance characteristics of the C-17 force improve the ability of the total airlift system to fulfill the worldwide air mobility

requirements of the United States. The ultimate measure of airlift effectiveness is the ability to rapidly project and sustain an effective combat force close to a potential battle area. Threats to U.S. interests have changed in recent years, and the size and weight of U.S.-mechanized firepower and equipment have grown in response to improved capabilities of potential adversaries.

This trend has significantly increased air mobility requirements, particularly in the area of large or heavy outsize cargo. As a result, newer and more flexible airlift aircraft are needed to meet potential armed contingencies, peacekeeping or humanitarian missions worldwide.

The C-17 was designed and built with this new world order in mind.





Pioneering operational C-17 test pilots routed to Hickam

By Kirsten Tacker
Kukini Photojournalist

Operational test pilots Lt. Col. Mike Thayne, 15th Airlift Wing chief of C-17 program integration office, and Lt. Col. Chris Davis, 535th Airlift Squadron commander, volunteered to test the first C-17.

Based on their airlift experience they were selected as operational test pilots in the 1990s. They were brought in to ensure the new aircraft would meet all the various airlift requirements.

In the operational test business test pilots validate the operational requirements document established by the parent command, in this case Air Mobility Command, said Colonel Davis.

Colonel Davis and Colonel Thayne tested the aircraft ability to conduct a variety of mission including low-level airdrops, jerk landings and air refueling.

“We don’t go through test pilot school,” stated Colonel Thayne. “We come in for a specific project, in this case the C-17. An operational test pilot would be concerned with is this a good air dropper? Is it employable in the kind of missions it was designed to do?”

Both experienced on other aircraft, the C-17 gave Colonel Davis and Colonel Thayne new skills.

“I had not done air refueling, so that was a new experience,” said Colonel Davis. “It was quite a challenge and it is interesting to be in the test mode because the flight characteristics of the airplane are (controlled) electronically.”



Lt. Col. Chris Davis, 535th Airlift Squadron commander, flies a C-17 that was loaned out to Hickam. Colonel Davis was one of the original test pilots on the C-17 in the 1990s.

“The technology involved in the C-17 is just another generation further along,” said Colonel Thayne. “That’s not just the electronics, but the way it was designed.”

When Boeing designed the C-17 they used the expertise of people that used to fly cargo airlifters.

“They told them what they liked and didn’t like when they flew 130’s and 141’s,” said Colonel Thayne. “They tried to take those lessons learned and take some expertise to make the C-17 more capable, more of what they would’ve liked to have flown if they were on active duty.”

The C-17 uses a smaller aircrew of two pilots and one loadmaster compared to other aircraft using six. The automation on the C-17 aircraft allows the team to com-

plete a mission with a smaller crew.

During the initial operational test and evaluation they were asked to fly operational representative low-level routes to see whether a three-man crew could effectively accomplish all the tasks, said Colonel Thayne.

This was considered the human factors testing portion of which both participated.

“The low-level would either terminate in an airdrop of people or equipment or it could terminate into a short field landing,” said Colonel Thayne.

“You need to be at that airdrop or at that landing zone at a particular time and at all the little points on the low level,” he continued. “As you get there you need to be on time, so part of our



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testing was from a human factors standpoint.”

Questionnaires were filled out after their flights regarding the workload level. They had fewer personnel on the aircraft and theoretically all the new automation was supposed to take the place of the missing three.

“A key concept for the C-17 was that it was a three-person crew,” said Colonel Davis. “I was the project pilot both for the air land, which included air refueling and airdrop human factors mission evaluation. The technologies we had reduced the work load enough to make it compatible for the three-person crew.”

Colonel Davis put the C-17 through a standard operational mission profile. He did long

cruise legs, traditional airdrop and complete airdrop mission profiles focusing more on the complete mission profiles.

Colonel Davis was wired for sound, but they were taking heart rate monitor and eye blink rate data to validate the workload was acceptable.

“I think it is such a rare opportunity to be able to fly an airplane from its inception to see how it develops,” said Colonel Thayne. “To see why it is the way it is.”

Both understood that the opportunities would be far and few between, because there hasn’t been another air-lifter developed since the C-17.

“It really is a once in a career opportunity,” concluded Colonel Thayne. “I feel very fortunate to have had that chance.”

C-17 In history

Sept. 15, 1991

First flight from Long Beach California, to Edwards Air Force Base, California

May 24, 1994

Crew flies first overseas mission to RAF Mildenhall, United Kingdom.

August 1995

C-17s fly operational missions to Southwest Asia to support Operation Intrinsic

September 1995

C-17s fly Hurricane Marilyn relief supplies to Puerto Rico and the U.S. Virgin Islands

Sept. 14, 1997

Eight C-17s make a 20-hour flight to drop zone at Kazakhstan

Jan. 15, 1998

Six C-17 aircraft transport critically needed equipment to winter storm-ravaged New England states. Action

1991

1995

1998

June 4, 1994

C-17 breaks short take off and landing (STOL) world record with 44,083lb of cargo taking off in 1,369ft and landing in 1,356 ft

October 1994

First operational missions to the Arabian Peninsula in support of Operation Vigilant Warrior.

Nov. 3, 1995

Defense Acquisition Board announces Decision to procure an additional 80 C-17s.

Jan. 16, 1998

C-17 delivers relief supplies to victims of an earthquake in China.

Sept. 9, 1998

C-17 transports a killer whale from Newport, Oregon, to Westman, Iceland, during Operation Keiko Lift.





15th Airlift Wing, 154th Wing work side by side



15th Operations Group



- **25th Air Support Operations Squadron** – will be able to expand its training opportunities, and continue to provide support to Team Hickam.
- **65th Airlift Squadron** – will provide transport for Gen. Paul Hester, Pacific Air Forces commander, to Long Beach, Calif. to pick up the C-17 and it will also provide flight attendants for the flight from Kaneohe to Hickam.
- **15th Operations Support Squadron** – is responsible for aircrew training, airfield operations, combat tactics, life support, flight records and more.
- **535th Airlift Squadron** – The 535th AS members will be the crewmembers for the C-17s stationed at Hickam.

154th Wing – The Hawaii Air National Guard is doing its share of the work to successfully bring aboard the C-17s to Hickam. HIANG Airmen will be flying, loading and maintaining the C-17 aircraft that will begin arriving Wednesday. The addition of the new HIANG members to support the C-17 mission will mean a shift in the current workload for the support staff. The 154th Medical Group along with the 154th Comptrollers Office, Mission Support Group, Judge Advocate General, Safety Office and Chaplains will continue to play its part in supporting the HIANG members involved in this new 15th Airlift Wing/154th Wing Association Unit.

15th Maintenance Group



- **15th Aircraft Maintenance Squadron** – performs launch and recovery of aircraft. The unit conducts primarily flight line maintenance and inspection.
- **15th Maintenance Operations Squadron** – handles scheduling, maintenance training, plans and programs, and resource management.
- **15th Maintenance Squadron** – conducts equipment maintenance, home station checks, fabrication, and maintenance of aircraft generation equipment.

15th Medical Group



15th Aeromedical-Dental Squadron, 15th Medical Support Squadron, 15th Medical Operations Squadron – role in the C-17 mission is to ensure personnel are medically ready to deploy.

15th Mission Support Group



- **15th Civil Engineer Squadron** – assisted in managing, funding, designing and constructing all C-17 infrastructure.
- **15th Communications Squadron** – manages and provides communication services to all those who are involved on the ground with the C-17.
- **15th Contracting Squadron** – ensures all acquisition and administration contracts dealing with the C-17 buildings are within regulation and to standard.
- **15th Logistics Readiness Squadron** – maintains all cargo, equipment, gear and vehicles that comes along with the C-17

aircraft.

- **15th Mission Support Squadron** – provides and supports a safe and welcoming environment to the more than 600 people who will be coming to Hickam to support the C-17 and making Hickam their new home.
- **15th Services Squadron** – provides services that will provide new C-17 support personnel an enhanced quality of life.
- **15th Security Forces Squadron** – provides a secure environment and protects the base population, the pilots and the C-17 aircraft.



ONE TEAM One Fight



New C-17 era at Hickam continues airlift tradition

By Steve Diamond
Pacific Air Forces Historian

Hickam's Earliest Airlift Mobility Roles

When America entered WWII December 7, 1941, the Air Corps Ferrying Command was the sole US military transport group, with only 2,800 officers and men and 20 aircraft assigned. War revealed the need for robust airlift, and within a few years the Air Transport Command had grown to 227,000 officers and men operating a fleet of 3,090 aircraft.

During the war, Hickam Field saw hundreds of cargo aircraft, such as the C-39 (the first cargo transport at Hickam), C-46 Commando, C-47 Skytrain, and C-54 Skymaster. Each of these aircraft was adapted from commercial airliners for military service. The C-47 "Gooney

Bird" was the backbone of airlift in its day. America's military services bought over 10,000 C-47s during WWII. General Dwight Eisenhower credited the C-47 - along with the jeep, the bazooka, and the atomic bomb - as key to winning World War II.

In the Pacific theater, Gooney Birds not only delivered personnel and equipment but also took on the new aeromedical evacuation mission. Many C-47s arrived at Hickam carrying patients on their way to Tripler Hospital. Sturdy, dependable old "Gooney Birds" continued to fly through both the Korean and Vietnam wars.

Military airlift gains its own organization and its own aircraft, 1940s-1950s

In September 1947 the United States Air Force was born. Less than a year later, the Department

of Defense created the Military Air Transport Service (MATS), and Hickam became home to the Pacific Division of MATS.

Almost immediately, MATS C-47 and C-54 aircraft and personnel began deploying from Hickam to Germany to support "Operation Vittles," the Berlin Airlift that delivered 2.3 million tons of cargo between June 1948 and July 1949.

Soon after that humanitarian effort ended, the Korean War began, again sending MATS aircraft and crew into action. Although the C-54 was MATS' main transport during the Korean conflict, new aircraft like the C-97 Stratofreighter and its variant KC-97 Stratotanker, and the huge C-124 Globemaster II, also entered service flying to and from Hickam. C-97s provided regular transport service from Travis AFB through Hickam,

Wake, Japan, Midway, and back to Hickam during the 1950s. Hickam was also home to over two dozen C-124s, the first aircraft designed from scratch as a strategic military transport. By the end of the 1950s, MATS also began flying the C-133 Cargomaster from Hickam.

Military Airlift Moves into the Modern Age

While the first USAF jet fighter, the F-80, joined combat in Korea in 1950, airlifters had to wait until 1964 for the first jet military transport, the C-141, to appear. With the arrival of the C-141 Starlifter, the C/KC-135 Stratotanker, and the C-5 Galaxy military airlift entered the modern jet era.

Although the Air Force used the C-135 for a time for airlift, it was the KC-135 tanker that became an enduring Air Force

asset. KC-135s began appearing on Hickam's flight line in the 1960s and have been stationed here ever since. In the 1970s, the 15th Air Base Wing flew specially modified EC-135s as airborne command and control post systems for the Commander in Chief, Pacific Command (CINCPAC).

Since 1992, the 65th Airlift Squadron has carried on the mission supporting the commanders of USPACOM and PACAF, flying C-135s until 2003, when the squadron converted to C-37 and C-40 business jets. KC-135Rs continue to call Hickam home, as the Hawaii Air National Guard flies Stratotankers in support of Pacific theater operations.

With the arrival of the C-17 Globemaster IIIs, Hickam continues its long legacy as the Pacific air mobility hub, home to airlifters old and new.

Steps to building Hickam's C-17



Hawaii's Lt. Gov., Duke Aiona (left) accepts a Hawaii state flag March 21, 2005, from Boeing vice president and C-17 Program Manager Dave Bowman. The flag was flown on the first flight of the 100th C-17 Nov. 5, 2002. Shortly after accepting the flag, Aiona pushed a ceremonially "start" button to formally kick off assembly start for Hickam's first C-17 at Boeing's Long Beach, Calif., assembly facility.



Boeing Structural Mechanic James O'Connell works on the inner wing structure of Hickam's first C-17 in July 2005. This assembly is part of the C-17's huge wing - one of four major sections that will be joined together a month later in an event known as the major join. In the major join, the wing is mated to the three fuselage sections.



Boeing, the Hawaii National Guard and the U.S. Air Force celebrate the major join of Hickam's first C-17 Aug. 19, 2005. Maj. Gen. Robert Lee, Adjutant General of the State of Hawaii and the commander of the Hawaii National Guard, addresses a large gathering of Boeing employees and Honolulu civic and base leaders at the major join celebration. Major join is a significant milestone in the aircraft's assembly, as it's the first time the C-17 actually looks like an airplane.



A Little Touch Up Boeing aircraft painters in Long Beach swarm over Hickam's first C-17 in the cavernous paint hangar, across the tarmac from the assembly facility. The aircraft, the U.S. Air Force's 146th C-17 and named the "Spirit of Hawai'i - Ke Aloha", is the first of eight destined for Hickam. The Boeing paint crew begins the week-long paint process by covering the C-17 in a color the Air Force calls "Air Superiority gray." In this photo, painters are applying what's known as the topcoat. After the airplane is painted, it is towed out to the Boeing flight ramp to begin tests in preparation for first flight.



Once on the Boeing flight ramp, the "Spirit of Hawai'i - Ke Aloha," workers begin readying the airplane for its maiden voyage. They will test all major systems, fuel the airplane, and run engines for the first time prior to its first flight. P-146 is scheduled for delivery from Long Beach Tuesday.



The first U.S. Air Force C-17 to be based outside the continental United States takes off Jan. 20 for the first time from the Long Beach airport, with Boeing pilot Joel Brown at the controls. Alongside Brown is an Air Force/Defense Contract Management Agency pilot, and on board are loadmasters, as well as various flight test support personnel. First flight and subsequent test flights are designed to confirm that all systems are functioning properly and the airplane is ready for delivery.